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ABSTRACT

To determine the syntactic maturity of eighth grade Canadian students' writing, all the students in four eighth grade classes were asked to write two compositions--one narrative and one argumentative--two weeks apart. The syntactic maturity level of the resulting 81 narrative compositions and 82 written arguments was compared with the syntactic maturity found in three previous studies, through analysis of words per T-unit (the smallest unit into which a sentence can be divided without producing a fragment that would be grammatically incomplete), the number of words per clause, and the number of clauses per T-unit. The results indicated that the syntactic maturity of the students was entirely in line with that reported in three comparison studies by Hunt, Loban, and Pringle/Freedman. (EL)

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THE SYNTACTIC MATURITY OF GRADE EIGHT STUDENTS IN THE WINDSOR SEPARATE SCHOOL BOARD

A Report to the Roman Catholic Separate School Board
for the City of Windsor

by

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October, 1985

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I must thank the principals and teachers in the participating schools for their cooperation, and Amanda Dibbs, graduate student in Education at the University of Windsor, for many hours of assistance with syntactic analysis.

Donald Laing
October, 1985

Contents

T-Unit Analysis of Syntactic Maturity 1

Subjects 4

Procedures 7

Scoring 8

Results 10

Conclusions 12

Appendix 1: Analyses of Variance: The Effect of Sex on Syntactic Maturity 14

References 15

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T-unit Analysis of Syntactic Maturity

Substantial research over the past twenty years has shown a variety of measures based upon the T-unit to be reliable indicators of the levels of syntactic maturity in students' writing. A T-unit, or minimal terminable unit, is the smallest unit that a sentence can be divided into without producing a fragment that is grammatically incomplete. It is, in other words, an independent clause with all of the dependent structures related to it that would be grammatically incomplete if separated from it. For example: "When we arrived, we went down to the pool for a swim and then ate supper" is all one T-unit as neither "When we arrived" nor "and then ate supper" can stand alone grammatically. If, however, the sentence read, "When we arrived, we went down to the pool for a swim and then we ate supper," there would be two T-units as "and then we ate supper" could stand alone grammatically.

In general, as children's language develops to maturity their sentences become steadily more complex as they attempt to express increasingly more complex ideas in their writing. A number of ways of measuring this development have been employed in such major studies as Kellogg W. Hunt's Syntactic Maturity in Schoolchildren and Adults (1970), Walter Loban's Language Development: Kindergarten through Grade Twelve (1976), and Ian Pringle and Aviva Freedman's A Comparative Study of Writing Abilities in Two Modes at the Grade 5, 8, and 12 Levels (1985). These studies have established that, as students mature over the grades, they tend to write more words per T-unit. For example, Loban finds steady growth in words per T-unit (W/T) from 7.60 in grade 3 to

10.37 in grade 8 and then to 13.27 in grade 12 for a random sample of students in California (Loban 1976: 33). Another established measure of complexity is that as children get older they tend to write sentences containing more and more subordinate clauses. This tendency is reflected by a steady increase in the number of clauses they write per T-unit. Hunt reports a progression in sentence complexity as measured by clauses per T-unit from 1.043 in grade 4 to 1.430 in grade 8 and then, more gradually, to 1.441 in grade 12 (Hunt 1970: 20).

Since results from the three studies cited above will be used in this report to provide comparative figures for those produced by the grade 8s within the Windsor Separate School Board (WSSB), it will be helpful to know something about them.

The comparison with Hunt should be made with some reservation, for his results are based not on actual samples of students' writing but on their efforts at completing a test instrument of his devising. Nevertheless, the consistency with which subsequent studies have reported scores similar to Hunt's suggests that his results can be taken with some confidence as representing typical performance, and they have in fact been accorded something of the status of norms within the field.

Loban reports the results of a massive twelve-year study conducted at the University of California into the growth of children's language from kindergarten through grade 12. He provides results for three groups of students: low ability students, a random group of students, and high ability students. The random group is the appropriate comparison group for the WSSB students, who were not streamed for the

current study. By virtue of its size and thoroughness, Loban's study has served as the reference point for other studies, most of which have produced figures much in line with it. In one respect, however, Loban's study has a weakness: it does not provide results for different modes of writing. Argumentative writing typically employs greater syntactic complexity than narrative (Crowhurst and Piche 1979; Crowhurst 1980), and consequently can be expected to produce results higher than the more general figures published by Loban. However, his results, which appear to be based mainly on narrative writing, can confidently be used for comparison in that mode.

The most recent study, that of Pringle and Freedman, reports the syntactic maturity of a 10% random sample of the students in two Ontario boards of education at the grade 4, 8 and 12 levels. Since their study does differentiate between different modes of writing, its results provide the best point of comparison for the WSSB students.

So that comparison might be made with Pringle and Freedman as well as with Hunt and Loban samples of writing in both modes were collected.

Subjects

All the students in four grade 8 classes drawn from schools representing the east and west ends of the city and its central core participated in the study (N = 84). Since some subjects were absent on the writing days, the data for the modes of writing are based on slightly different subject groups; 81 students wrote narratives and 82 submitted arguments. Descriptive statistics comparing the groups of students writing in each mode by sex and age are given in Table 1.

Table 1 : Mean Age in Years and Months of Groups by Mode and Sex

	Narrative			Argument		
	F	M	T	F	M	T
N	43	38	81	44	38	82
$\bar{X}$	13.11	14.0	13.11	13.10	14.0	13.11

The socioeconomic status (SES) of the subjects is generally of concern in research into linguistic performance. If, for example, the subjects came predominantly from comparatively privileged socioeconomic groups, it might reasonably be doubted whether the scores of such children represent typical performance. This would also be so if they came predominantly from less privileged backgrounds. Ideally, the subjects should come from a range of backgrounds that reflects the makeup of the community itself.

Employing a simplified version of the occupational categories and rankings of Pineo and Porter (1979), the subjects were rated by parental

occupation on a five point scale according to the following classifications:

1. Professionals, major proprietors, managers and officials, large
2. Semi-professionals, minor proprietors, managers and officials, small
3. Clerical and sales, skilled and semi-skilled workers
4. Unskilled workers
5. Unemployed, welfare, retraining allowances, etc.

In cases where both parents were employed at different levels, subjects were placed in the higher classification. Those from single-parent homes were rated according to the parent they lived with. Table 2 provides the number of subjects in each classification for the two modes of writing.

Table 2 : SES for Subjects by Mode of Writing

	SES Classifications					
	1.	2.	3.	4.	5.	Total
Narrative	12	19	41	4	5	81
(%)	(14.81)	(23.46)	(50.62)	(4.94)	(6.17)	(100.0)
Argument	12	20	40	5	5	82
(%)	(14.63)	(24.39)	(48.78)	(6.10)	(6.10)	(100.0)

As Table 2 shows, the subjects of the study are not unduly concentrated within any socioeconomic group and do, to a reasonable extent, reflect the diversity of SES within the city of Windsor itself. There would seem

no reason to question the findings of this report on the grounds the children tested are not typical of the student population as a whole.

Procedures

The subjects were asked to write two compositions, one narrative, the other argumentative, two weeks apart in May of their grade 8 year. Both writing stimuli were taken from those proven successful in the field trials for the Ontario Assessment Instrument Pool (Ministry of Education, Ontario, 1982). The narrative stimulus selected asked the students to write from personal experience about someone, perhaps themselves, who always seems to cause trouble for others, and suggested as a possible title, "Trouble Always Starts When _____ Is Around." The stimulus for argument asked, "Should Young Teenagers be Spanked?" Students were invited to consider both sides of the question, and to propose alternatives that seemed reasonable to them. The cooperating teachers were asked to provide a few minutes for the students to discuss the topics amongst themselves before settling in to write. Forty-five minutes were given one day for an initial draft, which was then collected, and forty-five the next for revising and polishing the draft into final form. The use of dictionaries and other standard reference materials was permitted but students were requested not to seek assistance from others or to discuss their papers once the actual writing had started. After the writing sessions, the papers, identified only by number and written on standard school foolscap, were taken to the university, photocopied, and returned directly to the teachers for purposes within their own school writing programs.

Scoring

According to Hunt, the three most reliable indicators of syntactic maturity are the following:

1. the number of words per T-unit (W/T); i.e., the total number of words in the piece of writing divided by the number of T-units;

2. the number of words per clause (W/C); i.e., the number of words divided by the number of principal and subordinate clauses in the piece of writing;

3. the number of clauses per T-unit (C/T); i.e., the number of principal and subordinate clauses divided by the number of T-units.

(Hunt 1970: 6)

These three measures were calculated for the WSSB grade 8s. So that comparison might be made with Loban and with Pringle and Freedman, the number of clauses per T-unit was modified slightly to the number of dependent clauses per T-unit (DC/T), a change that reduces each score by one by excluding the main clause in the T-unit from the count. Basically, all this change does is reduce Hunt's scores for clauses per T-unit by one; i.e., in Table 4 below Hunt's score for C/T, 1.43, is reported as 0.43. In addition, a fourth measure, the number of words in dependent clauses expressed as a percentage of the total number of words in the T-units (WDC/T%), was computed in order to provide additional comparison with Loban.

Each measure was determined independently by two scorers for each student composition following the principles for T-unit analysis outlined by O'Hare (1973, 48-49). When differences occurred in scoring, and remarkably few did occur, they were reconsidered until both scorers were in agreement.

Results

The results of the T-unit analysis are based on 81 narrative compositions with a mean length of 386.96 words and on 82 arguments with a mean length of 228.12 words.

Analyses of variance reveal that the sex of the students has no significant effect on any of the measures of syntactic maturity taken. Consequently, the results have not been reported by sex. For those who wish further detail, the statistics for the analyses of variance are provided in Appendix I.

To place the performance of the WSSB grade 8s in perspective, Table 4 includes, whenever they are available, the comparative figures for grade 8 students reported by Hunt, Loban, and Pringle and Freedman. The figures listed from Pringle and Freedman are those given for personal narrative.

Table 4: Mean Scores for Syntactic Complexity in Narrative Writing

	WSSB	Hunt	Loban Random	Pringle/ Freedman
	N = 81	N = 50	N = 35	N = 38
W/T	10.40	9.84	10.37	11.15
W/C	7.20	6.79	---	---
DC/T	0.45	0.43	0.50	0.43
WDC%	26.94	---	26.30	---

Since argumentative writing tends to produce syntax of significantly greater complexity than narrative writing (Crowhurst and Piche 1979; Crowhurst 1980), it can be argued that the best indicator of students' syntactic maturity is to be found in their performance in argument. Table 5 reports the results for the WSSB grade 8s with comparative figures for the students studied by Pringle and Freedman, the only study published so far that provides results specifically for argumentative writing at the grade 8 level.

Table 5: Mean Scores for Syntactic Complexity in Argumentative Writing

	WSSB	Pringle/Freedman
	N = 82	N = 84
W/T	13.68	14.09
W/C	7.50	---
DC/T	0.85	0.84
WDC%	41.49	---

Conclusions

The syntactic maturity of the WSSB grade 8 students in both modes of writing is entirely in line with that reported in the three comparison studies. In relation to Pringle and Freedman, probably the most appropriate comparison, the WSSB students score slightly higher on two measures and slightly lower on two others. Without access to Pringle and Freedman's data it is, of course, not possible to say whether these differences are statistically significant. They are so slight, however, that the likelihood of significance appears thoroughly remote.

It is interesting to note that in their argumentative writing the WSSB students demonstrate levels of syntactic maturity considerably above the 29.71% which Loban reports for high-ability students in California (Loban 1976, 44). Indeed, in Table 5 the WSSB grade 8s register a complexity well above that Loban gives for high-ability students in grade 12, 33.82% (Loban 1976, 44). As noted above, there is reason to believe that Loban's scores may underestimate the syntactic resources of his subjects. On the other hand, there is no way of knowing how much argumentative writing was in fact included in his sample. In any case, on the basis of available evidence, the performance of the WSSB students on this measure must be judged impressively mature.

A note of caution must be sounded about what is being said here. The results given in this report reveal general patterns of syntactic maturity, and syntactic maturity is but one area of writing competence. It does not follow that writing which is syntactically more complex is necessarily better writing. Henry James is not automatically a better

writer than Ernest Hemingway by virtue of his more complicated sentences. Many times one well-chosen word can replace an entire dependent clause. Some young writers write extremely complex sentences that are almost out of control. These measures do, however, provide a reliable indicator of growth in syntax, and it can be confidently said that, in terms of their syntactic resources, the students tested are thoroughly competent young writers.

In summary, the grade 8 students of the Windsor Separate School Board have syntactic resources at their disposal the equal of any grade 8 students reported in North America.

Appendix I

The Effect of Sex on Syntactic Maturity

Mode	Measure	Female Mean	Male Mean	F	df
Narrative		(N = 43)	(N = 38)		
	W/T	10.24	10.59	0.71	1, 79
	W/C	7.01	7.42	3.30	1, 79
	DC/T	0.47	0.43	0.80	1, 79
	WDC%	27.44	26.37	0.36	1, 79
Argumentative		(N = 44)	(N = 38)		
	WT	13.56	13.82	0.11	1, 80
	WC	7.71	7.25	2.28	1, 80
	DC/T	0.80	0.91	1.26	1, 80
	WDC%	39.67	43.58	1.50	1, 80

The F ratio does not reach significance at the .05 level on any measure.

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